

# Gui Frameworks

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## 1. Introduction

Gui Frameworks known also as widget toolkits are used to construct Graphical User Interface programs.

## 2. Qt

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**Qt** is a cross-platform application development framework for desktop, embedded and mobile.

With **Qt**, GUIs can be written directly in C++ using its **Widgets** module. Qt also comes with an interactive graphical tool called **Qt Designer** which functions as a code generator for Widgets based GUIs. **Qt Designer** can be used stand-alone but is also integrated into Qt Creator.

*Qt is far more than a GUI toolkit.* It provides modules for cross-platform development in the areas of networking, databases, OpenGL, web technologies, sensors, communications protocols (Bluetooth, serial ports, NFC), XML and JSON processing, printing, PDF generation, and much more.

### 2.1. Create simple application without Qt Creator

1. Create project folder

Example: 03-SimpleAppWithouQtCreator

2. Add the following main.cpp file

```

#include <QApplication>
#include <QColor>
#include <QTextEdit>

int main(int argc, char **argv)
{
    QApplication app (argc, argv);

    QTextEdit textEdit("My Text in text edit");
    textEdit.show();

    return app.exec();
}

```

### 3.Add Qt project file SimpleApp.pro

```

TEMPLATE = app
TARGET = simpleappwithoutQt

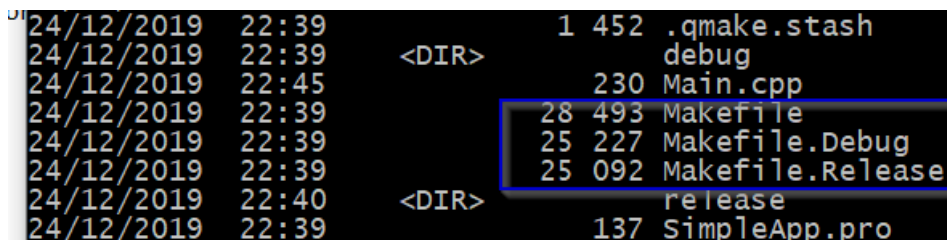
QT = core gui

greaterThan(QT_MAJOR_VERSION, 4): QT += widgets

SOURCES += main.cpp

```

4.In QT command window (MSVS or MingW) call **qmake** tool. The qmake generates the make files.



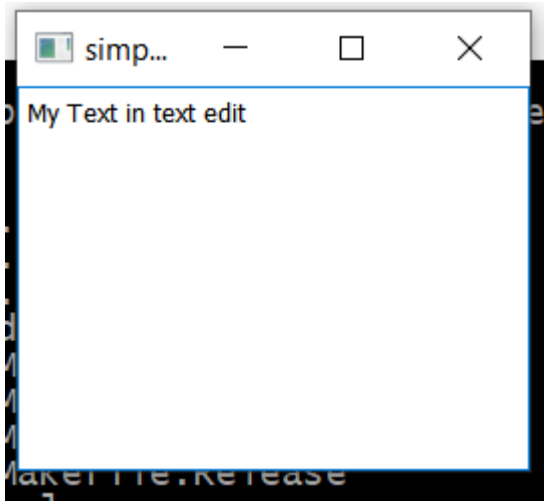
```

24/12/2019 22:39      1 452 .qmake.stash
24/12/2019 22:39      <DIR>      debug
24/12/2019 22:45      230 Main.cpp
24/12/2019 22:39      28 493 Makefile
24/12/2019 22:39      25 227 Makefile.Debug
24/12/2019 22:39      25 092 Makefile.Release
24/12/2019 22:40      <DIR>      release
24/12/2019 22:39      137 SimpleApp.pro

```

5.In QT command windows run the make/nmake command.

6.Run the \*.exe file created in release/debug folder



## 2.2. Deploy Qt application

### 2.2.1. Windows
















#### Qt application Deployment for Windows

1. Execute `nmake release`. This will create the **release** folder.
2. In the release folder execute **windeployqt** windows deployment tool.

Example: `windeployqt simpleappwithoutQt.exe`

```
E:\ccp_vhdd_main\workspace_ming\Poc\03-QtSimpleApp\04-SimpleAppSeparateWindow\release>windeployqt simpleappwithoutQt.exe
E:\ccp_vhdd_main\workspace_ming\Poc\03-QtSimpleApp\04-SimpleAppSeparateWindow\release>simpleappwithoutQt.exe 64 bit, release executable
Adding Qt5Svg for qsvgicon.dll
Direct dependencies: Qt5Core Qt5Widgets
All dependencies   : Qt5Core Qt5Gui Qt5Widgets
To be deployed     : Qt5Core Qt5Gui Qt5Svg Qt5Widgets
Updating Qt5Core.dll.
Updating Qt5Gui.dll.
Updating Qt5Svg.dll.
Updating Qt5Widgets.dll.
Updating libGLESV2.dll.
Updating libEGL.dll.
Updating d3dcompiler_47.dll.
Updating opengl32sw.dll.
Updating vc_redist.x64.exe.
Patching Qt5Core.dll...
Creating directory E:\ccp_vhdd_main\workspace_ming\Poc\03-QtSimpleApp\04-SimpleAppSeparateWindow\release\iconengines.
Updating qsvgicon.dll.
Creating directory E:\ccp_vhdd_main\workspace_ming\Poc\03-QtSimpleApp\04-SimpleAppSeparateWindow\release\imageformats.
Updating qgif.dll.
Updating qicns.dll.
Updating qico.dll.
Updating qjpeg.dll.
Updating qsvg.dll.
Updating qtga.dll.
Updating qtiff.dll.
Updating qwbmp.dll.
Updating qwebp.dll.
Creating directory E:\ccp_vhdd_main\workspace_ming\Poc\03-QtSimpleApp\04-SimpleAppSeparateWindow\release\platforms.
Updating qwindows.dll.
Creating directory E:\ccp_vhdd_main\workspace_ming\Poc\03-QtSimpleApp\04-SimpleAppSeparateWindow\release\styles.
Updating qwindowsvistastyle.dll.
Creating E:\ccp_vhdd_main\workspace_ming\Poc\03-QtSimpleApp\04-SimpleAppSeparateWindow\release\translations...
Creating qt_ar.qm...
Creating qt_bg.qm...
Creating qt_ca.qm...
Creating qt_cs.qm...
Creating qt_da.qm...
Creating qt_de.qm...
Creating qt_en.qm...
Creating qt_es.qm...
Creating qt-fi.qm...
Creating qt-fr.qm...
Creating qt-gd.qm...
Creating qt-he.qm...
Creating qt-hu.qm...
Creating qt-it.qm...
Creating qt-ja.qm...
Creating qt-ko.qm...
Creating qt-lv.qm...
Creating qt-pl.qm...
Creating qt-ru.qm...
Creating qt-sk.qm...
Creating qt-uk.qm...
Creating qt-zh-TW.qm...
```

3. This creates the deployment package.

Name	Date modified	Type	Size
 iconengines	25/12/2019 10:56	File folder	
 imageformats	25/12/2019 10:56	File folder	
 platforms	25/12/2019 10:56	File folder	
 styles	25/12/2019 10:56	File folder	
 translations	25/12/2019 10:56	File folder	
 d3dcompiler_47.dll	18/03/2019 18:50	Application extens...	4 377 KB
 libEGL.dll	08/11/2019 17:37	Application extens...	24 KB
 libGLESV2.dll	08/11/2019 17:37	Application extens...	3 496 KB
 opengl32sw.dll	14/06/2016 14:00	Application extens...	20 433 KB
 Qt5Core.dll	25/12/2019 10:56	Application extens...	6 021 KB
 Qt5Gui.dll	08/11/2019 17:37	Application extens...	6 357 KB
 Qt5Svg.dll	09/11/2019 20:31	Application extens...	331 KB
 Qt5Widgets.dll	08/11/2019 17:37	Application extens...	5 462 KB
 simpleappwithoutQt.exe	25/12/2019 01:00	Application	23 KB
 vc_redist.x64.exe	26/10/2019 10:10	Application	14 721 KB